

Comments
QAPP draft Worksheet #9 received on January 22, 2014
River Mile 10.9 Operations and Maintenance Plan

EPA reviewed the draft Quality Assurance Project Plan worksheet referenced above. In response, we offer the following:

1. Objectives for Performance Monitoring of the RM 10.9 Cap

- a. Demonstrate physical stability of the cap (not under discussion here)
- b. Demonstrate chemical stability of the cap (focus of these comments)

CPG Comment - The RM 10.9 Removal Action was implemented to reduce the risk associated with the direct contact exposure to sediments by people due to elevated concentrations of COPCs in RM 10.9 surface sediments. The cap physically prevents direct contact to underlying sediment by river users. As an added benefit an active layer was included to further enhance the protectiveness of the cap. In the near term, the surface of the cap is likely to be recontaminated by sediment deposition which is likely to be in the low 100s of ppt of TCDD – two orders of magnitude less than the pre-dredge surface of the RM 10.9 Removal Area. The CPG does not agree with Region 2's rationale for an aggressive short-term chemical monitoring program of the RM 10.9 cap. It is unnecessary to evaluate the short-term effectiveness of the cap to chemically isolate COPCs when the primary goal of the Removal Action and the construction of the cap were to remove and reduce the direct contact risk due to the presence of elevated concentrations in the surface sediment.

On the Hudson River, Region 2 requires monitoring of the Phase 2 engineered caps for physical integrity and chemical isolation effectiveness. The chemical isolation effectiveness monitoring will occur in designated sentinel areas 10 years after completion of cap construction in those areas and then at 10-year intervals, or as soon as practical after a flood event exceeding the design recurrence interval for those caps.. For Onondaga Lake long-term monitoring of the cap includes routine physical and chemical monitoring which is anticipated to occur 5, 10, 20, and 30 years after construction begins. For the Lower Passaic River Study Area, EPA has required no chemical monitoring at the Lister Avenue Phase 1 Removal Action site. Region 2's requirements for the RM 10.9 Removal Area are completely inconsistent with the chemical monitoring requirements for frequency and schedule established at other Region 2 capping sites such as the Hudson River and Onondaga Lake..

The CPG believes that only physical monitoring is sufficient and required to monitor the effectiveness and integrity of the cap. If the RM 10.9 cap is similar and consistent to that implemented as any final remedy for the LPRSA, then the need for long-term chemical monitoring for the cap should be determined as part of the overall LPRSA long-term monitoring plan and regular 5 year reviews. This appears to be the rationale developed for the Hudson River and Onondaga Lake and should apply to the RM 10.9 Removal Action as well.

2. Objectives of Pore Water Monitoring

- a. Verify the cap is performing as expected by monitoring 3 zones of the capped sediment
- b. Determine the influence of both underlying sediment concentrations and overlying water concentrations on the cap and cap performance

CPG Comment - CPG is not aware that Region 2 has required Tierra/Maxus/Occidental (TMO) to evaluate the impact of overlying surface water concentrations and sediment deposition on the Phase 1 backfill area. Since Region 2 has identified backfill as a potential post dredging measure among its FFS alternatives, it is unclear and appears inconsistent as to why Region 2 is requiring evaluation of this parameter for the RM 10.9 engineered cap while the same has not been required for the backfill of the Phase 1 Removal Area.

- c. Evaluate the relative difference between the 3 layers

CPG Comment - There are multiple reasons that could be causing the differences including post capping deposition of contaminated sediments on the surface – (which has no bearing on the effectiveness of the cap); residuals within the active sand layer and the least of which is transport through the actives and layer in the short time envisioned by Region 2 for this monitoring program. As envisioned by Region 2 – this sampling program will not resolve and identify those possible reasons for detections of COPCs in or above the cap's active layer.

3. Locations and Frequency of Sampling

- a. Focus on monitoring 3 depth zones of the capped sediment:
 - i. Contaminated layer beneath cap – to determine baseline conditions
 - ii. Active carbon layer – to determine if breakthrough is occurring (1 or 2 samples)

CPG Comment - The COPCs are unlikely to be breaking through the active layer in the next five years and it is unlikely that this would be observable for at least 100 years and up to 250 years based on the CAPSIM model predictions.

- iii. Within the armor stone layer – to measure the influence contamination in the water column is having on the cap

CPG Comment - See previous comments.

- b. Divide the capped area into at least 4 sections, based on criteria such as
 - i. Thickness of cap placed

CPG Comment - There are only minor differences in active layer thickness –what are the criteria for selecting different categories? Moreover, the areas where the thickness of active

layer is reduced are characterized by underlying substrates of hardpan, rocks, rip-rap and native material where the potential for remaining contaminated sediment is minimal.

ii. Groundwater influx/upwelling

CPG Comment - What is Region 2's criteria for differentiation of areas?

iii. No-dredge zone potential edge effects on capped areas flanking this zone

CPG Comment - Region 2 has not required TMO to evaluate edge effects in the Phase 1 back fill adjacent to the undredged Phase 2 areas. Why is the evaluation of edge effect critical to evaluating the effectiveness of the RM 10.9 cap adjacent to non-dredge areas but not the boundary of the dredged Phase 1 area and Phase 2 areas and other undredged areas at Lister Ave and in Harrison Reach?

iv. Bathymetry

CPG Comment - What is Region 2's criteria?

c. Select at least 5 discrete locations within each section to monitor

i. a minimum of at least 20 sampling locations across the cap must be monitored

CPG Comment - CPG believes Region 2's recommended number of locations is excessive, unneeded and inconsistent with other long-term monitoring plans implemented at other Region 2 dredging projects such as the TMO Phase 1 removal and the Hudson River project.

ii. the number of locations will increase if more than 4 distinct areas are identified

CPG Comment - What is the criteria for identifying addition areas?

d. Collect samples 3 times within the first 5 years – sample during the season when the highest degree of upwelling would be expected

CPG Comment - What is EPA's basis for sampling frequency? Porewater concentrations are unlikely to show any changes in 1-5 years. What are requirements for QA/QC samples, duplicates, splits etc.?

e. This plan will result in the analysis of 60 to 80 samples 3 times prior to evaluation, for a total number of samples of 180 to 240

CPG Comment - This number of samples required by Region 2 for a 5 acre cap appears to be excessive with no clear cut data quality objectives established.

4. Parameters to Analyze

- a. Use PAHs as an indicator contaminant class at all locations
- b. Analyze at least 4 locations for dioxins and PCBs as well

CPG Comment - Is this required for all 3 events envisioned by Region 2 at all three depths?

- i. to verify efficacy of using PAHs as a surrogate

CPG Comment - How does the Region propose to evaluate this?

- ii. select locations based on areas with the highest underlying dioxin concentrations

5. Performance Standards

- a. Trigger location will be the upper portion (i.e., upper 1/3) of the active layer

CPG Comment – It is unclear why the upper layer would be the trigger – this portion of the cap is most affected by surface water and deposition.

- b. Trigger concentration should be based on modeled pore water concentrations predicted by the CapSim model

CPG Comment - Since CAPSIM does not predict break through for at least 100 years, it is unclear whether this is an unambiguous, appropriate or even measureable trigger for short term monitoring program in years 1-5.

- c. Consider collecting samples from both the bottom third and upper third of the active layer to further inform results

CPG Comment - The dredged surface was well-characterized in the RM10.9 pre-design investigation and at Region 2's directive extensively resampled at the conclusion of the dredging. Characterizing the bottom of the active layer is unnecessary. CPG Comments 1 and 3 address sampling the upper third of the active layer.

- d. Note that the CapSim model will need to be revisited to provide concentration estimates for the years when monitoring will occur, and may need to be revisited to provide upper bound estimates.

6. Methods for Pore Water Measurement

- a. Recommend using SPME fiber-pushpoint sampler approach (modified Henry sampler)
- b. Can penetrate through all 3 layers and analyze fibers at appropriate intervals
- c. Placement techniques for the SPMEs can be achieved through engineering
- d. Verify with labs that appropriate detection limits can be achieved

CPG Comment - CPG has concerns about advancing numerous sampling devices into the engineered cap.